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| (72) Inventor(s)<br>John Raymond Myers  | (58) Field of Search<br>UK CL (Edition P ) A4F FNT , A4K KEA<br>INT CL <sup>6</sup> A47K 11/10   |
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(54) Abstract Title  
**Disposable cleaning devices, particularly for cleaning toilets**

(57) A cleaning device for cleaning a toilet bowl comprises of a handle (14) and a head (13), where at least the head may be disposed of after one or a few uses. The head may be formed of a material which may be flushed away down the toilet, such as a material which slowly disintegrates upon contact with water and is biodegradable. The head may be impregnated with dry disinfectant or liquid disinfectant may be fed to the head through a tubular handle. In a preferred embodiment, the cleaning device comprises a rectangular block (30, Fig. 4a) formed from strips (32, Fig. 4a) of material joined by a water soluble adhesive. In use the glue dissolves to form a brush like head (38, Fig. 4b).

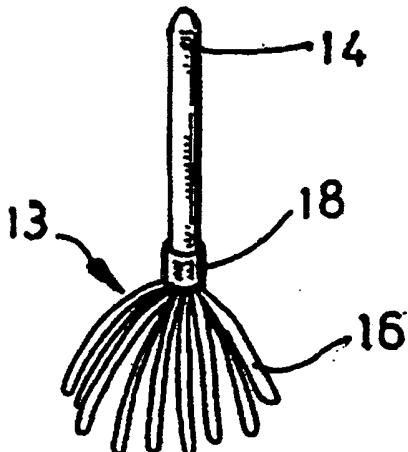


FIG. 2

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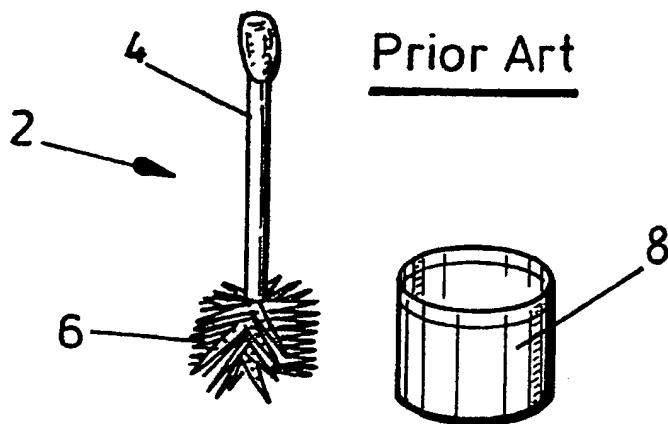


FIG. 1

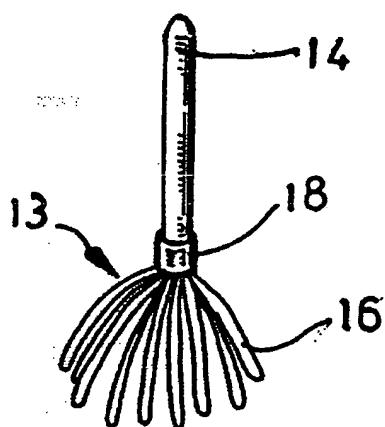


FIG. 2

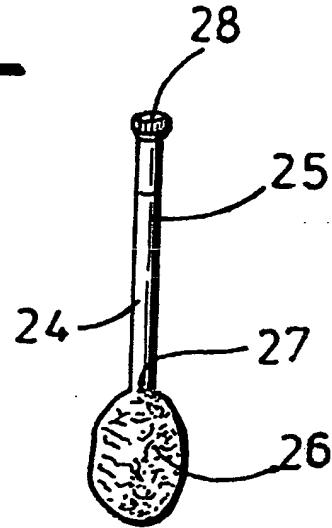


FIG. 3

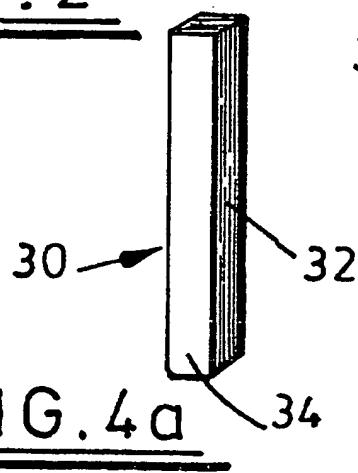


FIG. 4a

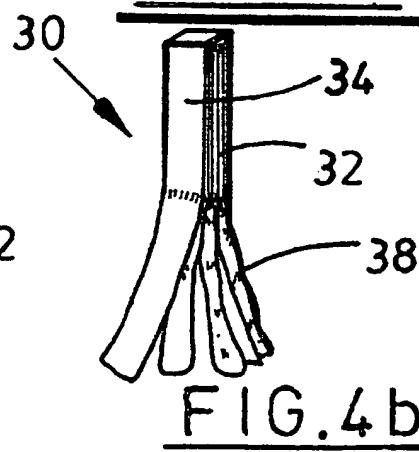


FIG. 4b

**TITLE:** An improved cleaning device, particularly for cleaning toilets

**DESCRIPTION**

The present invention relates to an improved cleaning device, particularly for cleaning toilets.

Toilets are usually cleaned using a toilet brush consisting of a handle and a cylindrical head of bristles. The brush is wiped around the toilet bowl and under its rim to scrub the toilet clean. Disinfectant may be poured into the toilet to kill any germs with the liquid being distributed around the bowl by flushing the toilet. This process is unhygienic since the dirty toilet brush is normally kept near to the toilet to be reused when required, for example being contained in a toilet brush holder. Toilet brush holders have been developed which hide the toilet brush from sight but the continuous use of a dirty toilet brush remains unhygienic and unpleasant.

The use of a large amount of disinfectant to clean the toilet is also environmentally unfriendly since the disinfectant is flushed away and may enter the water cycle. It is also wasteful because only a small amount of disinfectant is actually required to clean a toilet satisfactorily.

It is an aim of the present invention to provide an improved cleaning device for toilets which may overcome the above-mentioned drawbacks.

Accordingly, the present invention provides a cleaning device, particularly for cleaning toilets comprising a handle having a head at one end thereof for wiping around the toilet, wherein at least the head of the device is made of a material which

may be disposed of after use.

Preferably, the head is made of a material which may be flushed away. The material is preferably one which slowly disintegrates on contact with water to enable the head to be flushed away without blocking the system, such as reinforced paper or cardboard, and is preferably biodegradable.

The head is preferably formed from strips of material. The strips are preferably stiff to form bristles for scrubbing the toilet's surface. Alternatively, the head may be formed from a material which is wound around or attached to one end of the handle. The handle may also be disposable. Alternatively, the head may be detachable from the handle. A new disposable head may then be attached to the handle.

The head and/or handle may be impregnated with a dry or liquid disinfectant to assist in cleaning the toilet. The dry disinfectant will dissolve in the water contained in the toilet during cleaning with the device. If the head is dipped in liquid disinfectant, it is preferable to encase the device in suitable packaging prior to use. The device is preferably provided with the minimum amount of disinfectant required to clean the toilet.

The handle should be of sufficient length to enable the hands of the user to the be kept clear of the toilet whilst the head of the cleaning device is placed in the toilet bowl. Preferably, the handle is between 20 and 40cm in length. Preferably, the handle of the device is flexible so that it may be bent around the rim of the toilet during the cleaning thereof. The handle may be made of, for example, cardboard. If the handle is not disposable, the head may be attached thereto by any suitable means,

such as by a screw mechanism, hook, snap-on mechanism or otherwise. The non-disposable handle may be made of any suitable material, such as a plastics material, wood or steel.

The handle may be in the form of, for example, an elongate tube. The tube may contain liquid disinfectant for delivery to the head of the cleaner. Preferably, the end of the tube furthest from the head is provided with a removable cap to allow further disinfectant to be poured therein. The opposite end of the tube is preferably provided with a perforated plate or other suitable means to allow a steady flow of disinfectant to the head of the device.

In a preferred embodiment of the present invention, the cleaning device is comprised of a plurality of strips which are adhered together to form a single block. The adhesive holding the strips together is preferably water soluble such that, on placing the end of the device into the toilet water, the strips splay apart to form a brush-like head which may be used to scrub the toilet. As the ends of the strips disintegrate, adhesive further up the device will dissolve thereby producing further strips to clean the toilet, until the toilet is clean and any remaining material may be flushed away.

For a better understanding of the present invention and to show more clearly how it may be carried into effect, reference will now be made by way of example only, to the accompanying drawings in which:-

Figure 1 is a schematic diagram of a conventional toilet brush and handle;

Figure 2 is a cleaning device for a toilet according to one embodiment of the present invention;

Figure 3 is a schematic diagram of a cleaning device according to an alternative embodiment of the present invention;

Figure 4a is a schematic diagram of a cleaning device according to yet a further embodiment of the present invention prior to use; and

Figure 4b is a schematic diagram of the cleaning device of Figure 4a during use.

Referring to Figure 1 of the accompanying drawings, a conventional toilet brush 2 is illustrated comprising a handle 4 and a head of bristles 6. The handle is of a sufficient length to allow the head to be placed in the toilet bowl with the hands of the user being kept an appropriate distance from the bowl. The bristles of the head are moved around the bowl to scrub the surface clean. The toilet brush is then placed in a holder 8 which is normally situated near to the toilet for further use, when necessary.

This type of cleaning device for a toilet clearly has its drawbacks since it is unhygienic to keep a toilet brush which has been repeatedly used to clean a toilet, especially since the toilet brushes are rarely cleaned after use. The provision of a dirty toilet brush near to a toilet in a bathroom or cloakroom is also unsightly and unpleasant.

The present invention provides a cleaning device which may be disposed of after use thereby overcoming the above-mentioned drawbacks. Referring to Figure 2 of the accompanying drawings, a cleaning device according to one embodiment of the present invention is illustrated. The device has a handle 14, preferably made of a rigid material but having a degree of flexibility and a detachable disposable head 13

made of strips of a material 16 which may be flushed down the toilet, such as reinforced paper. The handle is around 30cm long to allow the hands of the user to be kept clear of the toilet whilst the head of the cleaning device is placed in the toilet bowl and used to clean the surface thereof. The strips of material comprising the head will disintegrate with time due to the action of the water in the toilet bowl, thereby allowing the head to be detached from the handle 14 of the device and flushed away. A new disposable head may then be attached to the handle by means of, for example, a screw mechanism 18 to allow further cleaning of the toilet using the device.

Alternatively, the handle itself may also be made of a material which may be flushed away, such as cardboard. Preferably, a pulse strip is provided in the cardboard to assist in the disintegration thereof.

Figure 3 of the accompanying drawings shows a different embodiment of the present invention. The cleaning device is in the configuration of a "cotton bud" or "match-stick" having a elongate, tubular handle 24 and a head 26 of material for cleaning the toilet. The head may be detachable from the handle or may comprise a piece of material which is wound round an end of the handle a number of times. Liquid disinfectant 25 may be contained within the tube 24 for delivering disinfectant to the head 26 during cleaning with the device through a perforated plate 27 provided across the end of the tube communicating with the head 26. The tube is provided with a cap 28 to allow additional disinfectant to be added to the device, when necessary.

Figures 4a and 4b illustrate yet a further embodiment of the present invention.

The disposable toilet cleaning device 30 is made of a plurality of strips of material 32, such as paper, which are adhered to each other by water soluble glue to form a rod 34. This enables multipacks of the disposable cleaning devices to be conveniently provided to the consumer in rectangular blocks, thus assisting with packaging and delivery of the products to the marketplace. During use, one end of the rod 34 is held by the user and the other is placed in the water contained in the toilet bowl. The adhesive which keeps the strips 32 together dissolves in the water causing the ends of the strips to splay apart to form a brush-like head 38 (as shown in figure 4b) which may be wiped around the surface of the toilet bowl to affect cleaning thereof. Slowly the material will disintegrate into the water to allow water to contact the rod higher up, thus causing more of the strips to come apart to provide further means for cleaning the toilet. Eventually, only a small handle will remain and this may be flushed away with the rest of the cleaning device.

The aforementioned cleaning device of the present invention may include dry disinfectant impregnated therein which dissolves in contact with the water to kill germs contained in the toilet. Preferably, one end of the device is free of disinfectant to enable the device to be held by the user at this end. It is clear that the cleaning device may be sold in multi-packs to provide an hygienic device for cleaning toilets which may be used and then disposed of, being suitable for both domestic and commercial use.

## CLAIMS

1. A cleaning device, especially for cleaning toilets, comprising a handle having a head at one end thereof for wiping around the toilet, wherein at least the head of the device is made of a material which may be disposed of after use.
2. A cleaning device as claimed in claim 1 wherein the head is made of a biodegradable material.
3. A cleaning device as claimed in claim 1 or 2, wherein the head is made of a material which may be flushed away.
4. A cleaning device as claimed in claim 3, wherein the head is made of a material which slowly disintegrates on contact with water.
5. A cleaning device as claimed in claim 4, wherein the head is made of a reinforced paper.
6. A cleaning device as claimed in claim 5, wherein the head is made of cardboard.
7. A cleaning device as claimed in any one of claims 1 to 6, wherein the head is made of strips of material.
8. A cleaning device as claimed in claim 7, wherein the strips are stiff to form bristles.
9. A cleaning device as claimed in any one of claims 1 to 6, wherein the head is formed from a material which is wound around or attached to one end of the handle.
10. A cleaning device as claimed in any one of the preceding claims wherein the handle is made of a non-disposable material.

11. A cleaning device as claimed in claim 10, wherein the handle is made of a plastics material, wood or steel.
12. A cleaning device as claimed in any one of claims 1 to 9, wherein the handle is also disposable.
13. A cleaning device as claimed in claim 12, wherein the handle is made of cardboard.
14. A cleaning device as claimed in any one of claims 1 to 11, wherein the head is detachable from the handle so that a new head may be attached thereto.
15. A cleaning device as claimed in claim 14, wherein the head is attached to the handle by means of a screw mechanism, hook or snap-on mechanism.
16. A cleaning device as claimed in any one of the preceding claims, wherein the head of the device is impregnated with a dry disinfectant.
17. A cleaning device as claimed in any one of claims 1 to 15, wherein the head of the device is dipped in liquid disinfectant.
18. A cleaning device as claimed in claim 16 or 17, wherein the device is provided with a measured amount of disinfectant, being the minimum amount required to clean a toilet.
19. A cleaning device as claimed in any one of the preceding claims, wherein the handle is 20 to 40cm in length.
20. A cleaning device as claimed in any one of the preceding claims, wherein the handle has a degree of flexibility to allow the handle to be bent around the rim of the toilet.
21. A cleaning device as claimed in any one of the preceding claims, wherein the

handle is in the form of an elongate tube.

22. A cleaning device as claimed in claim 21, wherein the tube contains liquid disinfectant for delivery to the head of the device.

23. A cleaning device as claimed in claim 21 or 22, wherein the end of the tube furthest from the head of the cleaner is provided with a removable cap.

24. A cleaning device as claimed in claim 22 or 23, wherein means is provided to allow a steady flow of disinfectant to the head of the device.

25. A cleaning device as claimed in claim 24, wherein a perforated plate is provided across the opening of the end of the tube nearest the head.

26. A cleaning device for cleaning toilets comprising a plurality of strips adhered together by a water soluble adhesive to form a single block, whereby on contact with water the strips splay apart to form a brush-like head for cleaning the toilet.

27. A cleaning device as claimed in claim 26, wherein the strips are made of a material which slowly disintegrates on contact with water.

28. A cleaning device as claimed in claim 27, wherein the strips are made of reinforced paper.

28. A cleaning device substantially as hereinbefore described and with reference to Figures 2, 3, 4a and 4b of the accompanying drawings.



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Patent  
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Application No: GB 9719845.1  
Claims searched: 1 to 25, 29\*

Examiner: Graham S. Lynch  
Date of search: 14 April 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): A4F (FNT); A4K (KEA)

Int Cl (Ed.6): A47K 11/10

Other: None

**Documents considered to be relevant:**

| Category | Identity of document and relevant passage |  | Relevant to claims                         |
|----------|---|--|--|
| X        | GB 2291798                                | OXBROW.<br>Whole document.   | 1, 3, 4,<br>5, 9, 14,<br>15, 21.           |
| X        | EP 0709053                                | S.A. FOLTEX DE NEUVOS PROD.<br>Whole document.                     | 1 to 6,<br>12, 13.                         |
| X        | EP 0313495                                | ADDUCI AURELIO <i>et al.</i><br>Figures 1 to 3. Description.       | 1 to 3,<br>7, 9,<br>12 to 14.              |
| X        | EP 0176248                                | SANI-FRESH. Figure 1.<br>Page 2, line 11 to page 9, line 19.       | 1, 10,<br>14, 15, 21,<br>22, 24.           |
| X        | US 5630243                                | FEDERICO.<br>Whole document.                                       | 1 to 3, 5,<br>9 to 11,<br>14, 16, 21.      |
| X        | US 4852201                                | WUNDROCK, CONRADY.<br>Figures 1, 2.                                | 1, 2, 5,<br>9 to 11,<br>14, 15, 16,<br>18. |
| X        | US 4493124                                | AGAPIOU. Figures 1 to 6.<br>Column 1, line 4 to column 4, line 17. | 1 to 4, 7<br>10, 11, 14,<br>16, 17, 19.    |

X Document indicating lack of novelty or inventive step  
Y Document indicating lack of inventive step if combined with one or more other documents of same category.

& Member of the same patent family

A Document indicating technological background and/or state of the art.  
P Document published on or after the declared priority date but before the filing date of this invention.

E Patent document published on or after, but with priority date earlier than, the filing date of this application.



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II

Application No: GB 9719845.1  
Claims searched: 1 to 25, 29\*

Examiner: Graham S. Lynch  
Date of search: 14 April 1998

| Category | Identity of document and relevant passage |   | Relevant to claims             |
|----------|---|---|--------------------------------|
| X        | US 4466152                                | MOSS, BORING, TOMM.<br>Figures. Summary. Description. | 1, 7, 10,<br>11<br>14, 15, 21. |
| X        | US 4031673                                | HAGELBERG. Figures 1, 5 to 8.<br>Description.         | 1 to 5,<br>9, 10, 14.          |

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|---|---|---|--|
| X | Document indicating lack of novelty or inventive step   | A | Document indicating technological background and/or state of the art.  |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention.            |
| & | & Member of the same patent family  |   | E Patent document published on or after, but with priority date earlier than, the filing date of this application. |